Human Factors in Space
Activity Sheet

Activity 1: Using Your Senses - Sight

1. Work in a group with another person. Go outside and look into the distance. Write down 3 ways that you can tell which things are farthest away and which things are closer.

1 _____

2 _____

3 _____

2. What happens to the colors of things that are very far away?

_____

_____

Activity 2: Using Your Senses – Hearing

1. You will do this in a classroom. The teacher will go to one part of the room and sound a tone with a musical instrument, a buzzer, or a bell. List 3 ways you can tell which part of the room the noise is coming from.

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2. Now, you will do this outside. Go outside and have the teacher make the same noise. List at least one way that you can tell where the noise is coming from.

_____

3. Is it harder to find the source of the noise outside or inside?

Activity 3: Exploring Ergonomics

Ergonomics is the study of the human body. People who study ergonomics want to know how far the average person can reach when sitting down, what is a comfortable way to hold a tool in the human hand, and how much information people can remember when looking at a dashboard or cockpit display. You are going to do some basic ergonomics measurements.

Clothing:

1. Measure each person from the left elbow to the wrist. Write down the measurement for each person on a chart.

2. Measure the length of each person's index finger and write the information down on a chart.

3. Now compare the measurements. If you wanted to make a shirt with sleeves that fit everyone, how long should you make the sleeves? Would everyone be happy with just one size?

4. Next, compare the measurements for the fingers. If you wanted to make one pair of gloves that fit everyone, how long should the fingers be?

Tools:

Each person will bring in a tool: Pliers, a staple gun, scissors, a hockey stick, a snow shovel, hammer, hand trowel, an electric drill, etc. Students will work in groups of two to evaluate each tool for how well it works, and answer the questions below.

1. Does the tool fit your hand, or is it too big, too small, etc?

2. How is the grip of the tool? Is it too big, too small, etc.

   Does it hurt your hand, back, shoulder, wrist, or legs when you use it over and over again?

3. Is the tool made for right-handed or left-handed people?

4. Do you need two hands to use the tool?

5. How could you design the tool to fit humans better?

6. Now put on a pair of winter gloves and try the tool again. What differences did you notice when you tried to use the tool wearing gloves?